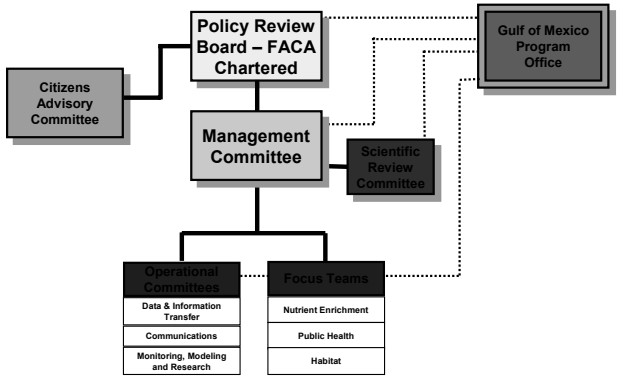
Gulf of Mexico Program
Citizens Advisory Committee
November 5, 2003

GMP Program Review

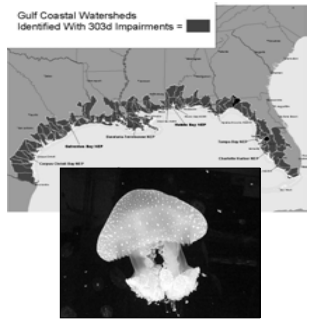
FY 2000-2003

GMP Structure/Participation



Key Challenges

- **45% all impaired waterbodies in coastal watersheds**
- **Gulf coastal counties 2nd fastest growth rate**
- **Basic services not satisfied (E.G., Sewage treatment)**
- **> 50% shellfish waters restricted**
- **50% wetland loss; 20% - 80% seagrass loss**
- **Increase in number & distribution Harmful Algal Blooms**
- **Increased awareness of Invasive Species**



What issues set the Gulf apart from other waters/coastal systems?

- *Vibrio vulnificus* oyster contamination
- Harmful Algal Blooms
- Gulf Hypoxia
- Louisiana coastal land loss

What issues does the Gulf have in common with other waters/coastal areas that need to be addressed?

- Invasive species
- Coastal development/urbanization
  - nutrient enrichment
  - habitat loss
  - sewage contamination
- Mercury contamination of fish
- Freshwater inflow

GMP Objectives

By 2009 –

- Restore 20% of impaired segments in priority coastal areas
- Assist the Gulf States in protecting public health (Vibrio, Mercury, HABs)
- Protect or restore 20,000 acres important coastal & marine habitat
- Implement voluntary practices to prevent invasive species
- Support national efforts to reduce Gulf hypoxia to 1,930 square miles
- Foster regional stewardship sense of community

GMP's FOCUS

- Restore water and habitat quality in impaired segments in 12 priority coastal areas

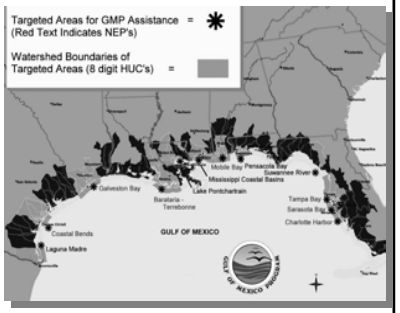
GMP's FOCUS

- [redacted]
  - **Restore water and habitat quality in impaired segments [which comprise the Hydrologic Unit Codes (HUCs)] in 12 priority coastal areas**

(USGS developed maps depicting boundaries and numerical codes for river basin units of the U.S. These maps and codes provide a standardized base for use by water resource organizations in locating, storing, retrieving, and exchanging hydrologic data.)

Priority Coastal Areas

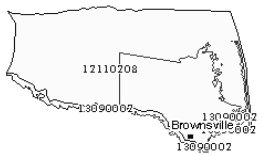
Lower Laguna Madre
Coastal Bend & Bays
Galveston Bay
Barataria-Terrebonne Bays
Lake Pontchartrain
Mississippi Coastal Basin
Mobile Bay
Pensacola Bay
Lower Suwannee River
Tampa Bay
Sarasota Bay
Charlotte Harbor



Texas

Priority Areas:
Lower Laguna Madre
Coastal Bend & Bays
Galveston Bay

Texas – Lower Laguna Madre System



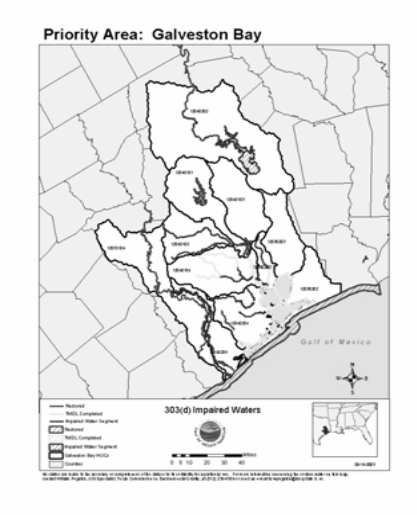
13090002 – Lower Rio Grande
12110208 – South Laguna Madre

Texas – Coastal Bend & Bays System

12100204 – Lower Guadalupe
12100303 – Lower San Antonio
12100403 – East San Antonio Bay
12100405 – Aransas Bay
12100406 – Mission
12100407 – Aransas
12110108 – Lower Frio
12110110 – Atascosa
12110201 – North Corpus Christi Bay
12110202 – South Corpus Christi Bay
12110203 – North Laguna Madre

Texas – Galveston Bay System

12030202 – Lower Trinity-Kickapoo
12030203 – Lower Trinity
12040101 – West Fork San Jacinto
12040102 – Spring
12040103 – East Fork San Jacinto
12040104 – Buffalo-San Jacinto
12040202 – East Galveston Bay
12040203 – North Galveston Bay
12040204 –West Galveston Bay
12040205 – Austin Oyster
12070104 – Lower Brazos



Priority Area Objective 1 Projects –

2001 Texas Gulf Coast Molluscan Shellfish Growing Waters

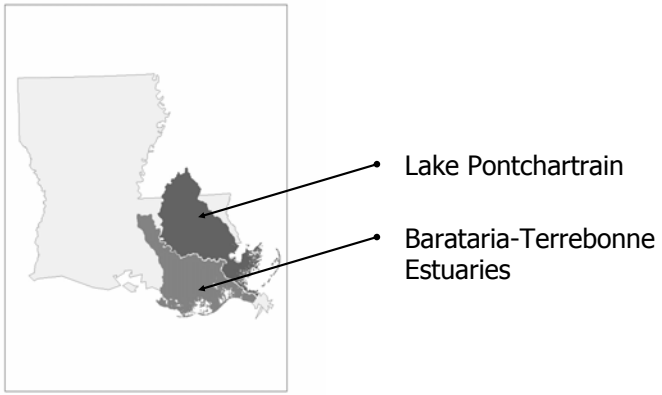
2002 Development and Implementation of Regional Water Quality Monitoring Program

Texas

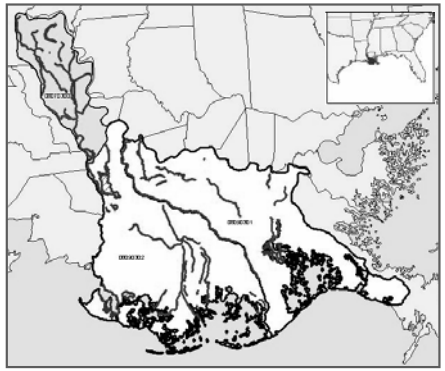
Major impairments:

Bacteria (oyster waters)
Pathogens
Mercury in King Mackerel
Dissolved Oyxgen
GB – Dioxin in Catfish & Crab Tissue

GMP Priority Areas in Louisiana

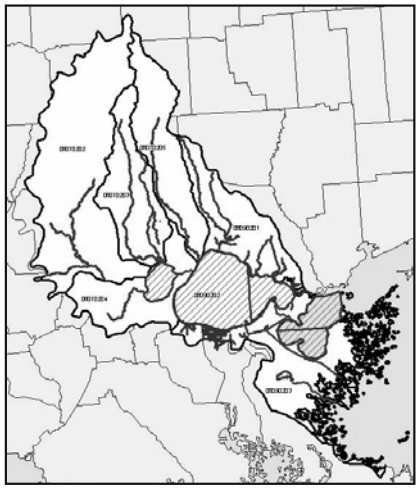


Barataria-Terrebonne

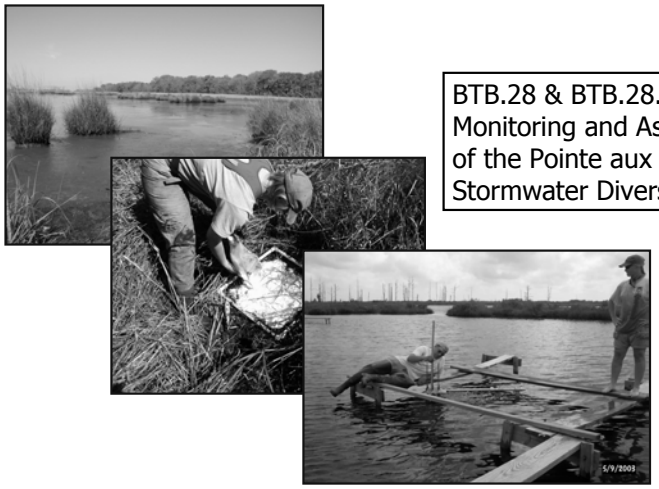


HUCs
08090301
08090302

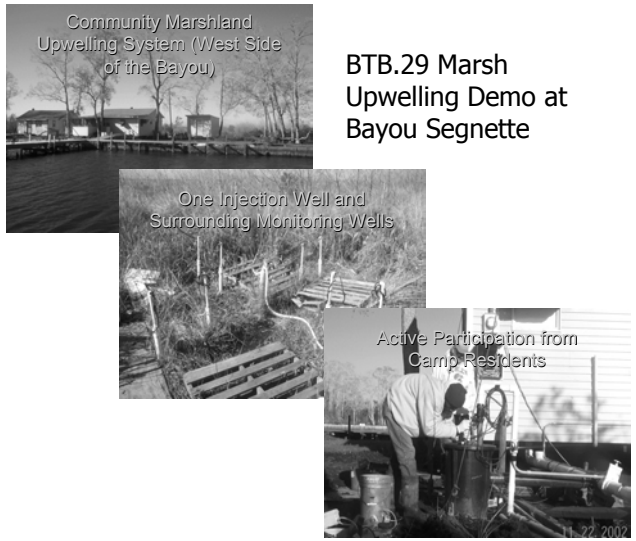
Lake Pontchartrain Basin



08070202 Amite
08070203 Tickfaw
08070204 Lake Maurepas
08070205 Tangipahoa
08090201 Liberty Bayou-Tchefuncta
08090202 Lake Pontchartrain
08090203 Eastern Louisiana Coastal

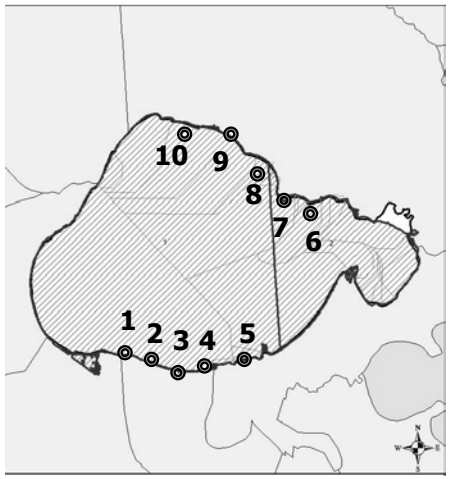


BTB.28 & BTB.28.1
Monitoring and Assessment of the Pointe aux Chene Stormwater Diversion



BTB.29 Marsh Upwelling Demo at Bayou Segnette

Lake Pontchartrain

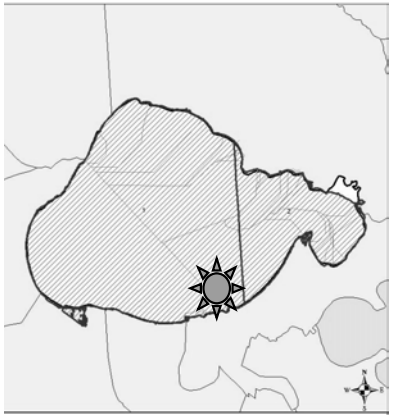


LP.25 Water Quality Monitoring in the Lake Pontchartrain Basin

Weekly Samples

1 Laketown, Kenner
2 Bonnabel Boat Launch
3 Old Beach
4 Pontchartrain Beach
5 Lincoln Beach
6 Northshore Beach
7 Bayou Castine
8 Fountainebleau
9 Bogue Falaya Park
10 Tchefuncte R.

Lake Pontchartrain

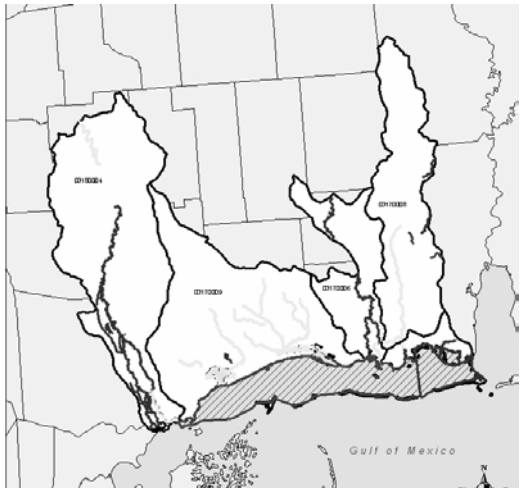


LP.39 Restoration of 100 Square Miles of Shellfish Habitat in Lake Pontchartrain

This project will document the adverse effects of episodic hypoxia on the biotic integrity of Lake Pontchartrain and provide quantitative data on the benefits derived from the restoration of 100 square miles of Rangia cuneata habitat.

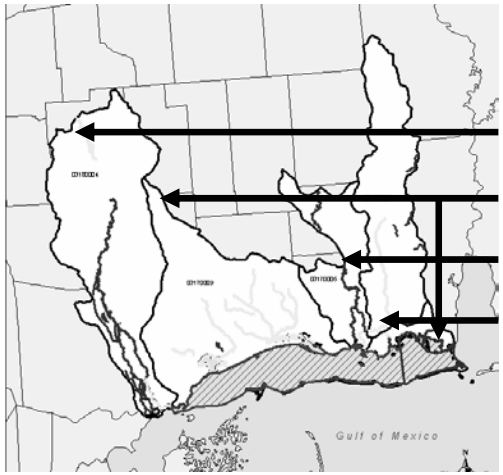
Louisiana

Major Impairments:
Nutrients
Fecal Coliforms
Low Dissolved Oxygen
Mercury
Turbidity
Sulfates
Pesticides



Map Credit: NOAA NCDDC
This information is correct pending a final review process from MDEQ

Mississippi Coastal Basins



Lower Pearl

Coastal Streams

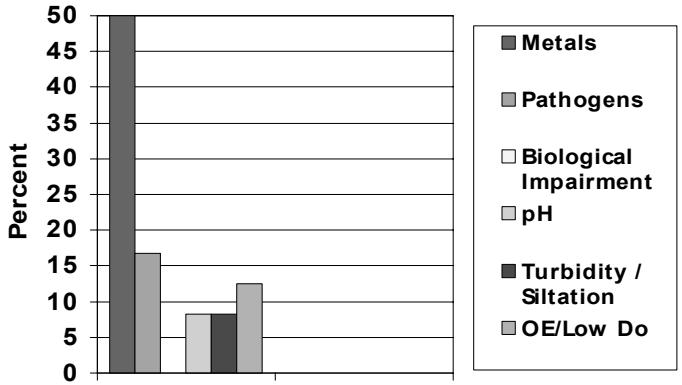
Pascagoula

Escatawpa

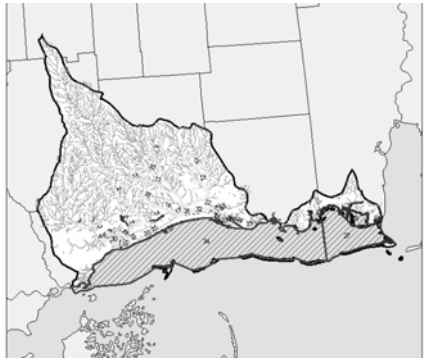
Map Credit: NOAA NCDDC
This information is correct pending a final review process from MDEQ

Lower Pearl - 03180004

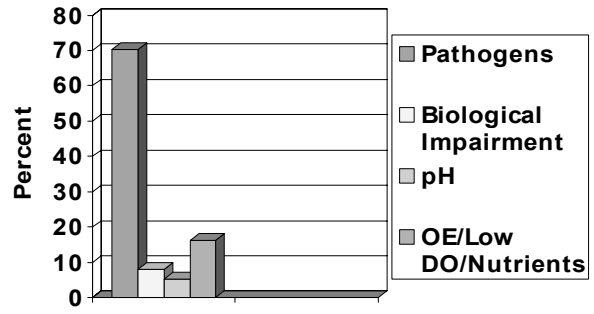
Lower Pearl Basin
Percent Impairments



Coastal Streams - 03170009

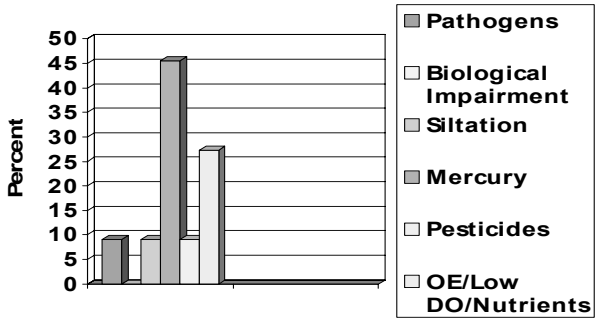


Coastal Streams Basin
Percent Impairments

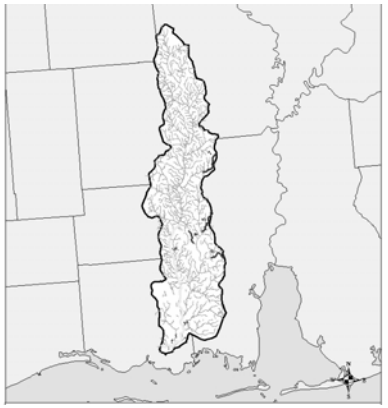


Pascagoula - 03170006

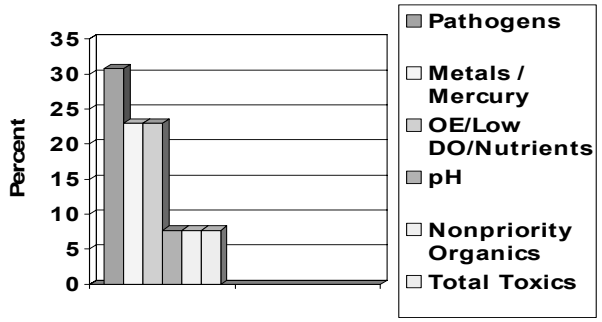
Pascagoula Basin
Percent Impairments



Escatawpa - 03170008



Escatawpa Basin
Percent Impairments



Lower Pearl Basin
Projects and Activities

- MCB.72 Monitoring for St. Louis Bay Estuary and Watershed Model Calibration
- MDEQ Pearl River Basin Team

Photo Credit: TNC

Coastal Stream Basin
Projects and Activities

Diamondhead WW Treatment Plant

- Nutrient Pilot Study
- Hancock County Comprehensive WW Collection and Treatment Plan
- MDEQ Coastal Streams Basin Team
- MDEQ Nutrient Criteria Development Team
- MS Coastal Basin Watershed Forum

Pascagoula Basin
Projects and Activities

Pascagoula River Basin Alliance Field Trip

- Pascagoula River Basin Alliance
- MDEQ Pascagoula River Basin Team

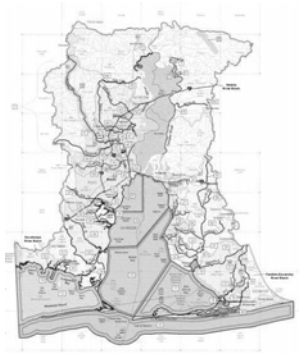
Mississippi

Major Impairments:
Pathogens
Low Dissolved Oxygen/Nutrients
Mercury
Metals

Mobile Bay Priority Area

Two 8 digit hydrologic units

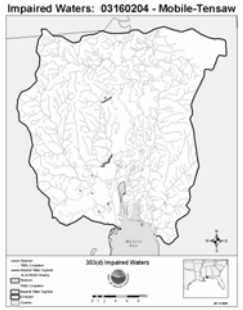
- **Mobile-Tensaw AL/03160204**
- **Mobile Bay AL/03160205**



Mobile-Tensaw AL/03160204

Water Segments

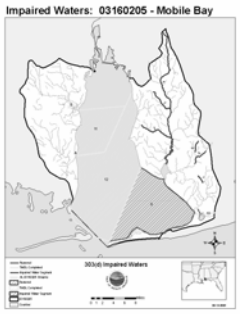
- **Chickasaw Creek**
- **Bayou Sara/Norton Creek**
- **Cold Creek Swamp**
- **Eightmile Creek**
- **Gum Tree Branch**
- **Threemile Creek**
- **Tensaw River**
- **Bay Minette Creek**



Mobile Bay AL/03160205

Water Segments

- **Bon Secour Bay**
- **UT to Bon Secour River**
- **Dog River**
- **Fish River**
- **Fowl River**
- **Bay Minette Creek**
- **Mobile Bay**
- **Mobile River**
- **Intracoastal Waterway**
- **Gulf of Mexico**



Impairments Mobile-Tensaw

Chickasaw Creek	Mercury
Bayou Sara/Norton Creek	Nutrients
Chicksaw Creek	Mercury
Cold Creek Swamp	Metals
Eightmile Creek	Pathogens
Gum Tree Branch	Pathogens
Threemile Creek	Chlordane/OE/DO
Tensaw River	Mercury
Bay Minette Creek	Mercury
ThreeMile Creek	OE/DO/pH

Impairments Mobile Bay

Bon Secour Bay	Pathogens
Dog River	Pathogens/OE/DO
Gulf of Mexico	Mercury
Fish River	MercuryPathogens
Intracoastal Waterway	OE/DO
Mobile Bay	OE/DO
Mobile Bay	Pathogens
UT to Bon Secour River	Pathogens
Bay Minette Creek	Mercury
Fowl River	Mercury
Mobile River	Mercury

1.A.1 Projects in AL/03160204

- MB.39 - Conservation Tillage Demo Project (FY 2003 Project)
- AL.42 - ThreeMile Creek TMDL Study (FY 2003 Project)

1.A.1 Projects in AL/03160205

- AL.24 - Coastal AL Recreational Water Quality Monitoring (FY 2000 & FY 2001 Project)
- AL.19/MB.23 - Mobile Bay & Watershed Water Quality Modeling (FY 2001 Project)
- AL.26 - LU/LC Analysis for Coastal AL (FY 2001 Project)
- AL.27 - AL Harmful Algal Bloom Info Exchange (FY 2001 Project)

Continuation of AL/03160205

- AL.12 - Baldwin Co. Septic Tank Maintenance Demo Project (FY 2002 Project)
- MB.39 - Conservation Tillage Demo Project (FY 2003 Project)

AL Strategic Assessment Process

- Identify project partners for highly-ranked projects
- Rank the projects based on their potential to remove the waterbody from the 303(d) list, available funding mechanism (including GMP funding), and public/political support

Alabama

Major Impairments:
Pathogens
Mercury
Low Dissolved Oxygen/Nutrients

FLORIDA

4 PRIORITY AREAS

Big Bend Basin including the Lower Suwannee, Santa Fe and Withlacoochee Rivers

Tampa Bay Basins including Springs Coast

Sarasota Bay

Charlotte Harbor

Water Quality

Impairments:

- **Coliforms**
- **Nutrients**
- **Turbidity**
- **Total Suspended Solids**
- **Biochemical Oxygen Demand**
- **Mercury**
- **Dissolved Oxygen**

Potential Sources

- **Silviculture**
- **Agriculture**
- **Wastewater Effluent**
- **Power plants**
- **Mining**

Lower Ochlockonee River

Water Quality

Impairments:

- **Coliforms**
- **Nutrients**
- **Turbidity**
- **Total Suspended Solids**
- **Biochemical Oxygen Demand**
- **Mercury**
- **Dissolved Oxygen**
- **Bacteria**

Potential Sources

- **Silviculture**
- **Refineries**
- **Wastewater Effluent**
- **Power plants**
- **Agriculture**
  - **Including plant nurseries**
- **Stormwater runoff**

Apalachee Bay – St. Marks

Water Quality

Impairment:

Dissolved Oxygen

Potential Sources

Silviculture

Agriculture

Urban runoff

Aucilla River

Water Quality

Impairments:

- **Dissolved Oxygen**
- **Biochemical Oxygen Demand**
- **Coliforms**
- **Cadmium**
- **Nutrients**
- **Dioxin**
- **Mercury**
- **Un-ionized Ammonia**
- **Conductivity**
- **Turbidity**

Potential Sources

- **Pulp & Paper Discharge**
- **Domestic Wastewater**

Nature Coast

Water Quality

Impairments:
- Nutrients
- Dissolved oxygen
- Coliforms
- Mercury
- Biology

Potential Sources
- Agriculture
- Wastewater
- Stormwater

Suwannee River

Water Quality

Impairments:
- Coliforms
- Nutrients
- Dissolved oxygen
- Mercury
- Biochemical oxygen demand

Potential Sources
- Silviculture
- Agriculture
- Mining
- Wastewater treatment

Santa Fe River

Water Quality

Impairments:
- Nutrients
- Coliforms
- Dissolved Oxygen
- Mercury

Potential Sources
- Agriculture
- Domestic Wastewater

Wacasassa River

Water Quality

Impairments:
- Dissolved Oxygen
- Coliforms
- Nutrients
- Biochemical Oxygen Demand

Potential Sources
- Agriculture
- Silviculture

Withlacoochee River South

Water Quality

Impairments:
- **Dissolved Oxygen**
- **Coliforms**
- **Nutrients**
- **Biochemical Oxygen Demand**

Potential Sources
- **Agriculture**
- **Silviculture**

Withlacoochee River South

Water Quality

Impairments:
- **Nutrients**
- **Dissolved Oxygen**
- **Coliforms**
- **Mercury**
- **Lead**
- **Turbidity**
- **Biochemical Oxygen Demand**
- **Total Suspended Solids**
- **Unionized Ammonia**

Potential Sources
- **Agriculture**
- **Silviculture**
- **Stormwater runoff**
- **Mining**
- **Wastewater discharge**

Hillsborough River

Water Quality

Impairments:
- **Dissolved Oxygen**
- **Coliforms**
- **Nutrients**
- **Turbidity**

Potential Sources
- **Urban non point source**
- **Agriculture**
- **Mining**

Alafia River

Water Quality

Impairments:
- **Dissolved Oxygen**
- **Coliforms**
- **Nutrients**
- **Total Suspended Solids**
- **Turbidity**
- **Biochemical Oxygen Demand**

Potential Sources
- **Agriculture**
- **Domestic Wastewater**
- **Industrial Wastewater**

Manatee River

Water Quality

Impairments:
- **Nutrients**
- **Turbidity**
- **Coliforms**
- **Dissolved Oxygen**
- **Lead**
- **Cadmium**
- **Copper**
- **Zinc**

Potential Sources
- **Wastewater Discharge**
- **Stormwater Runoff**

Sarasota Bay

Water Quality

Impairments:
- **Dissolved Oxygen**
- **Coliforms**
- **Nutrients**

Potential Sources
- **Agriculture**
- **Mining**
- **Domestic and Industrial Wastewater**

Little Manatee River

Water Quality

Impairments:
- **Dissolved Oxygen**
- **Coliforms**
- **Nutrients**
- **Turbidity**

Potential Sources
- **Urban Runoff**
- **Industrial Wastewater**
- **Domestic Wastewater**
- **Phosphate mining**
- **Agriculture**
- **Power Plants**

Tampa Bay

Water Quality

Impairments:
- **Dissolved Oxygen**
- **Coliforms**
- **Nutrients**
- **Biochemical Oxygen Demar**
- **Turbidity**
- **Total Suspended Solids**
- **Mercury**
- **Biology**

Potential Sources
- **Mining**
- **Agriculture**
- **Urban Runoff**

Myakka River

Water Quality

Impairments:
- **Dissolved Oxygen**
- **Coliforms**
- **Nutrients**
- **Unionized Ammonia**
- **Fluoride**
- **Turbidity**
- **Total Suspended Solids**
- **Biochemical Oxygen Demand**

Potential Sources
- **Mining**
- **Agriculture**
- **Urban Runoff**

Peace River

Water Quality

Impairments:
- **Nutrients**
- **Mercury**
- **Dissolved Oxygen**
- **Coliforms**
- **Turbidity**

Potential Sources
- **Urban**
- **Industrial**
- **Agriculture**

Charlotte Harbor

Water Quality

Impairments:
- **Dissolved Oxygen**
- **Nutrients**
- **Biochemical Oxygen Demand**
- **Coliforms**

Potential Sources
- **Agriculture**
- **Urban runoff**

Caloosahatche River

Water Quality

Impairments:
- **Dissolved Oxygen**
- **Nutrients**
- **Coliforms**
- **Copper**
- **Bacteria**

Potential Sources
- **Urban Runoff**
- **Agriculture**
- **Domestic Wastewater**

Estero Bay

FLORIDA

03110205 – Suwannee River

FY2000

LSR.07 – Analysis of fisheries data to determine freshwater requirements

FY2002

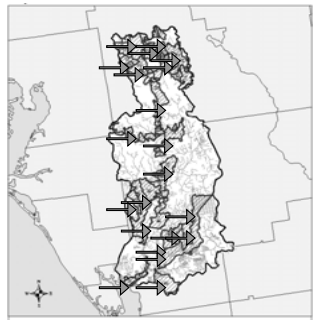
LSR.09 – Reduce onsite sewage impacts

FY2003 -2004

FL.24/SB.04 – Assessment of groundwater Discharge and sewage impacts

FLORIDA

03100101– Peace River



FY2000

CH.04-Establish environmental indicators and goals

FLORIDA

03090204 – Estero Bay

Group 1 Basin

FY 2003

CH.11 Ecological Calibration of Estero Bay Basins

FLORIDA

03100103– Charlotte Harbor

Group 2 Basin

FY 2004

CH13- Water Quality Survey for and correction of septic sewage pollutants

FLORIDA

03100201 – Sarasota Bay

FY2003 - 2004

FL.24/SB.04 – Assessment of groundwater discharge and sewage impacts

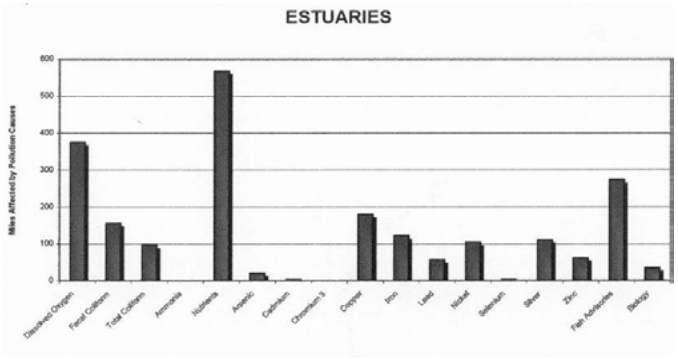
Sarasota Bay

FLORIDA

03100102 – Myakka River

FY2000
CH.04-Establish environmental indicators and goals

Pollution Causes (2002 305(b) Report)



Nutrients and subsequent eutrophication may be the major causes of impairment

Florida

Major Impairments:
Nutrients
Low Dissolved Oxygen
Coliforms
Mercury
Turbidity

Objective 1 – Water Quality

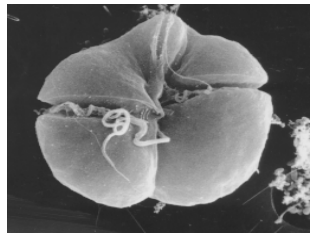
FY 2000-FY 2003:

GMP has funded 38 projects in priority areas to restore water quality –

$2,488,395

GMP's FOCUS

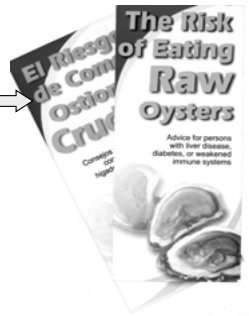
- **Shellfish**
- **Recreational Waters**
- **Harmful Algal Blooms**



Objective 2 (A) Assist the Gulf States in protecting public health by providing information concerning contaminated seafood and early warnings of harmful algal blooms.

The GMP will assist the Gulf States and the ISSC in reducing the rate of shellfish-borne Vibrio vulnificus illnesses caused by consumption of commercially-harvested raw or undercooked oysters.

Educational materials developed by the ISSC with Support from the GMP



Distribution (2002/2003)

113,881 consumer brochures (English)
66,627 consumer brochures (Spanish)
40,709 provider fact sheets

Sub-objective 2(B): Assist the Gulf States, in cooperation with the Gulf States Marine Fisheries Commission, in developing and implementing a scientifically sound, Gulf-wide monitoring program for total mercury/methylmercury levels in fish tissue from recreationally and commercially important species; …

Monitoring Program

Fisheries Dependent Sampling	**Total estimated cost: $2,000,000**
Fisheries Independent Sampling	**Total estimated cost: $80,000**

Status of the GSMFC's Gulf-wide initiative for Methylmercury in Marine Fish

….and in developing consistent fish consumption advisories and public outreach information regarding the health effects of methylmercury.

Status of Agreement on Advisory

GSMFC estimated that it will take four to six meetings and approximately two years to accomplish this task.

Most Popular Option:

- **Women of child bearing age and children under 7 years of age should not consume these fish**

- **All others not in these sensitive sub-populations should limit consumption of king mackerel within the size range of 24-32 inches fork length to two meals/month**

Has been suggested to wait and see what FDA and EPA are going to do.

<u>Objective 2:</u> Assist the Gulf States in protecting public health by providing information concerning contaminated seafood and early warnings of harmful algal blooms

<u>Sub Objective 2(C):</u> Complete a pilot project for an early-warning system to support State and coastal community efforts to manage harmful algal blooms (HABs) by the end of 2004.

<u>APG 2(C)(1):</u> Complete case study portion of the pilot project, evaluating retrospective events in the Gulf for 1996, 1997, and 2000.

Red tide

<u>Why Focus on HABs?</u>

Highly visible/multiple effects:

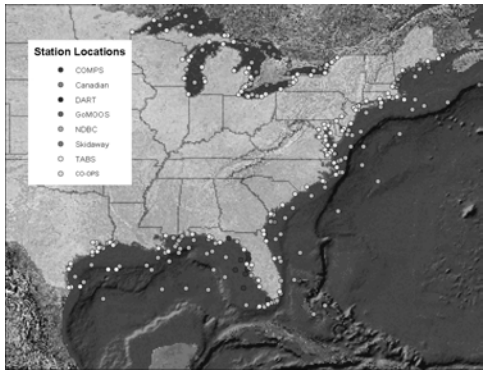
- Public Health: Seafood poisoning syndromes (NSP, ASP, DSP, PSP, ciguatera), respiratory irritation, memory and learning disabilities
- Economy: shellfish closures, fish kills, beach advisories (tourism); loss of consumer confidence
- Valued Resources: finfish, shellfish, manatees, dolphins, sea turtles
- Unknown ecological effects: 'non-charismatic' species and populations; water quality; habitat quality

Incentive for end-user participation

Integrated Ocean Observing System (IOOS)

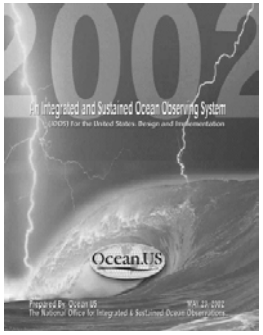
The integration of Coastal Observing Systems

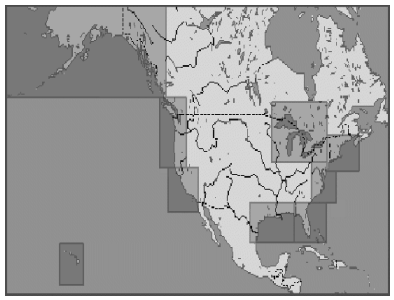
HABSOS is being considered as a major Gulf component of IOOS



HABSOS Pilot Project

One component of future
Gulf of Mexico Regional Observing System





A Federation of Integrated Ocean Observing Systems

Better Management

More efficient use of resources

Forecast when/where blooms will or will not occur

- **Early harvest of shellfish**
- **Altered fishing limits and open seasons**
- **Strategic placement of aquaculture sites**
- **Mobilization of response, cleanup, and rehab crews**
- **Public information and education; beach and shellfish advisories**

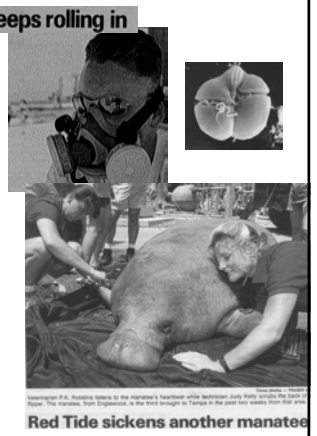
Why *Karenia brevis* ?

Most problematic HAB in Gulf

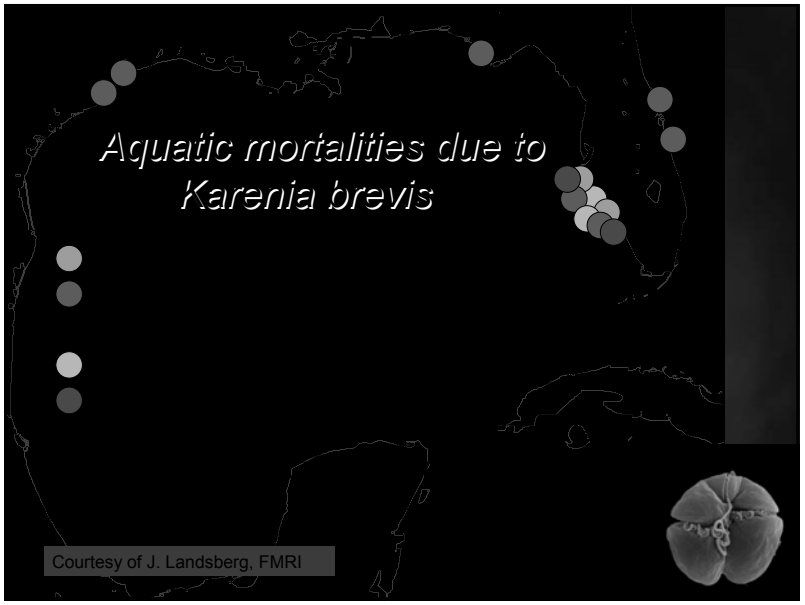
Public Health:
brevetoxins cause neurotoxic shellfish poisoning and respiratory irritation

Economy:
Millions of $$$ per major bloom (bed closures, beach cleanup, tourism, etc)

Valued Resources:
Mass mortalities of mammals, sea turtles, water fowl, fish and shellfish



HARMFUL/TOXIC



IMPACTS TO HUMANS

AEROSOL

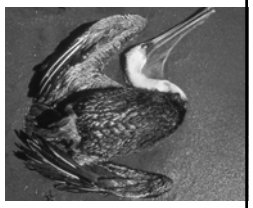
TOXIC SHELLFISH

ECONOMY

RECREATIONAL ACTIVITIES

HABSOS Pilot Project

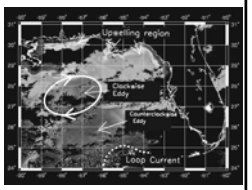
- **Design a HAB data management and communication system through**
  - **networking government agencies and coastal research labs, in order to**
  - **provide timely access to data and information**
- **Implementation will lead to**
  - **more effective/efficient use of collective resources on a regional scale**
  - **more timely detection, tracking and forecasting**



Assemble relevant data and communicate useful information

User Requirements

- **Data to make decisions:**
  Public Health: fish/shellfish consumption,bed closures, beach advisories
  Aquaculture: sites, disease, mortality
  Economic: tourism, beach clean-up, monitoring, fisheries
  Dissemination of information
- **24 hr advance notice**
  Alert that an event is in progress
  Forecast where/when (movement, landfall)
  Warning of conditions favorable for initiation

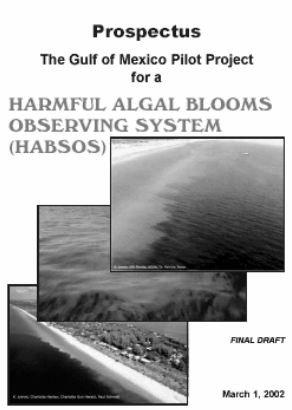


Challenge:

Develop data management and communications system

- **Little consistency among programs – states operate differently**
- **Not all data in electronic data bases – if electronic, mostly on individual PCs, and little available online**
- **No comprehensive inventory of existing/available data/metadata**
- **Poor communications between State agencies, between State & Federal agencies and between gov't agencies and coastal research labs**

HABSOS Pilot Project



Schedule of Activities for HABSOS Pilot Project (Federal fiscal quarters)

	2001		2002				2003		
Performance Measure (PM) /Activity	3	4	1	2	3	4	1	2	3	4
PM 1. *Establish a network*				X						
Prepare working prospectus	X	X		X						
Establish MOAs among partners	X	X	X	X						
Form Steering Committee			X							
Incorporate essential programs				X						
PM 2. *Useful presentation of data*					X					
Prototype portal system			X	X	X	X				
Plan for user feedback		X	X	X						
User guidelines				X	X					
PM 3. *Regional data availability*							X			
Convene expert panel		X								
Perform Case Study		X	X	X	X	X				
Document data availability							X	X		
PM 4. *Nowcast and forecast capability*									X	
Establish internet communications					X	X	X	X		
Automated data processing								X	X	
User feedback on system					X	X	X	X	X	
PM 5. *Resource needs (final report)*										X
Essential institutional commitment								X	X	X
Technical gaps, needs									X	X
Cost estimates										X

HABSOS Pilot Project

- **HAB expertise around GOM**
  - **K. Steidinger, FMRI (FL)**
  - **J. Pennock, DISL (AL)**
  - **C. Moncreiff, GCRL (MS)**
  - **Q. Dortch, LUMCON (LA)**
  - **J. Simons, TPWD, and T. Villareal, UTMSI (TX)**
- **Select recent years (bloom vs non-bloom) for retrospective case study**
  - **Identify data potentially useful to monitoring, tracking, forecasting**
  - **Locate and characterize the scale, extent and format of data**

HABSOS Pilot Project Retrospective Case Study

Major Question: With the relevant data and communication infrastructure in place, could we have forecast or predicted the development, transport and impacts of K. brevis

- **Initiates the HABSOS Pilot Project**
- **Working Group**
  - **HAB experts plus**
    S. Gallegos (NRL), K. Duvall (DISL, Castnet), R. Stumpf (NOAA/NOS), T. Orsi (NOAA/NCDDC)
- **Retrospective analysis:**
  - **1996 & 2000 - geographically-extensive blooms years**
  - **1997 - a geographically-limited bloom year**

HABSOS Case Study Objectives

- **Identify, characterize, and organize data from 1996, 1997 and 2000**
- **Integrate data into regional format applicable to forecasting**
  - **Characterize & resolve obstacles related to data entry, storage, and retrieval**
  - **Initiate a network and process for linking and integrating multiple data types from multiple sources**
  - **Initiate web-based presentation system subject to user feedback**
- **Identify and characterize *K. brevis* events**

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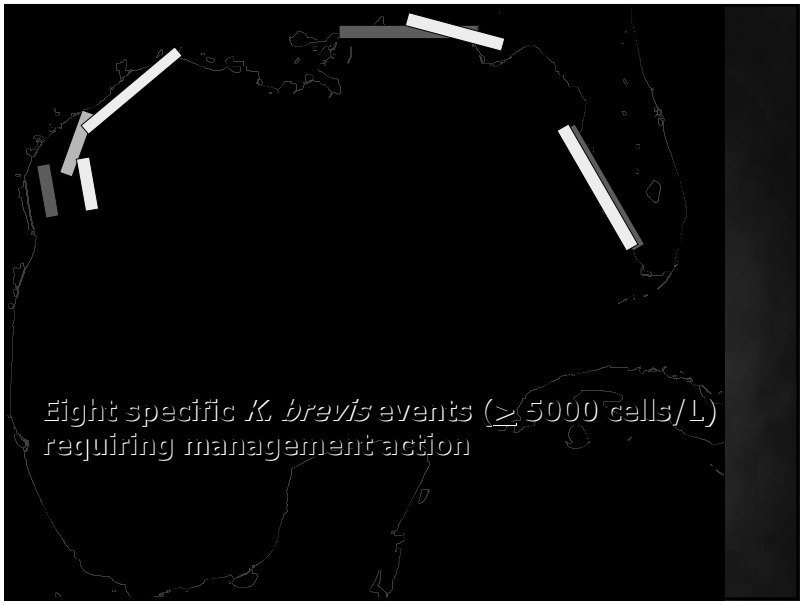
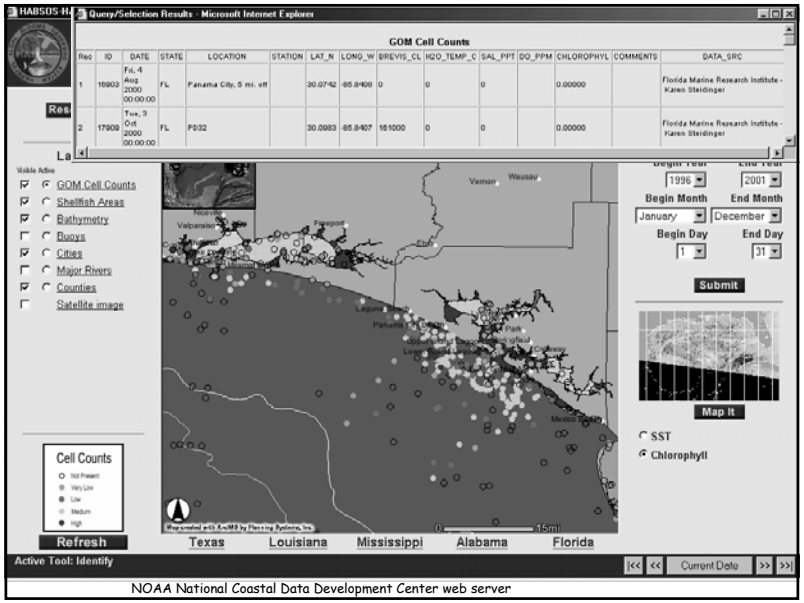
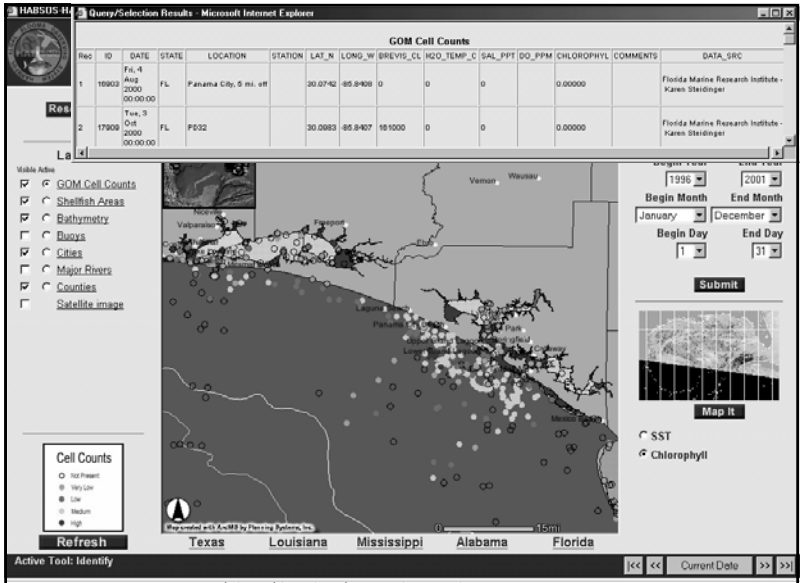


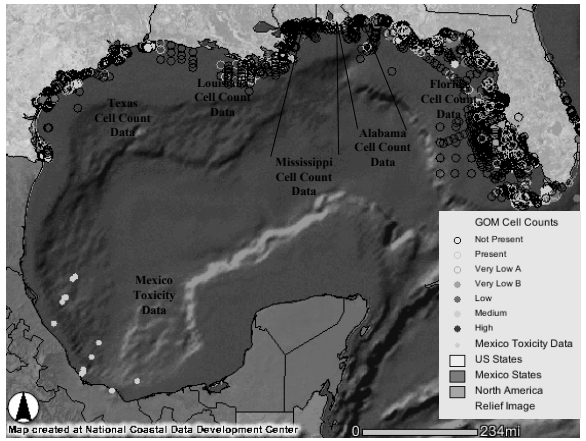


NOAA National Coastal Data Development Center web server



NOAA National Coastal Data Development Center web server

HABSOS -- New International Partnership



U.S., Mexico Cooperation on Gulf of Mexico:

A Binational Plan

Obstacles and Challenges

- **Time: 1-2 people/State qualified/accurately identify and enumerate cells**
  - **legal barriers related to shellfish bed closures (30 day)**
  - **rely on word-of-mouth on reports of fish kills**
- **Limited capacity to monitor coastal waters**
  - **driven by event response**
  - **identify conditions conducive to blooms**
- **Satellite Ocean Color sensors**
  - **detection limits of ~50,000-100,000 cells/L**
  - **need ground truth/validation of nearshore/beach**
  - **K. brevis-flag appears to work in FL, but does it work elsewhere?**

Case Study Products

- **Visualization of events prior to, during, and following K. brevis blooms**
- **Web-based portal system for linking and integrating multiple data types from multiple sources**
- **A simulation of the blooms to demonstrate the benefits of timely data integration and information dissemination**

- **Report to Steering Committee**
  - **Addressing question: With the relevant and timely data, could we have provided early alerts and forecasted transport of *K. brevis*?**
  - **includes obstacles and challenges identified during Case Study**
  - **Recommendations for developing and implementing a real-time or near real-time HABs observing system**

GMP ROLE

GMP PROVIDES UMBRELLA GOVERNANCE STRUCTURE

HABSOS Steering committee organization and facilitation

Case Study support and facilitation

Binational/Mexico Support

Projects in Alabama – HAB monitoring and research – report HABs on web site

Project in Texas – TexHAB Coordinator (proposed)

Objective 2 – Public Health

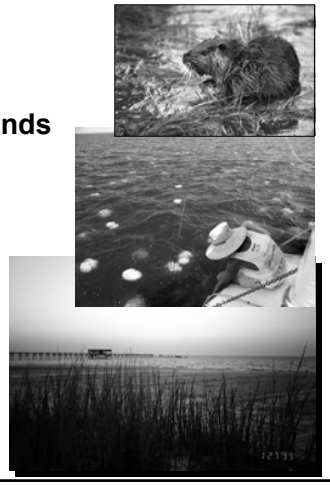
FY 2000-FY 2003:

GMP has funded 13 projects to assist in protecting public health –

$535,324

GMP's FOCUS

- [redacted]
  - **Seagrasses**
  - **Coastal Emergent Wetlands**
- [redacted]
  - **Ship Ballast**
  - **Shrimp Viruses**
  - **Gulf Regional Panel**



HABITAT OBJECTIVE 3

By 2009, the GMP will restore, enhance, or protect important coastal and marine habitats that are essential to the recreational and commercial fisheries of the Gulf, *including the prevention and control of invasive aquatic species* in U.S. areas of the Gulf by 20,000 acres.

How is the Habitat Acreage Goal Accomplished?

Through Selection of:
*State Projects –State meeting process

*Partnership Projects

** All Habitat Project Selection is based upon review and ranking by Habitat Team members and GMPO staff.*

GMP Acreage Totals

FY 2000	GOAL: 400	ACTUAL: 1,353
FY 2001	GOAL: 1000	ACTUAL: 732
FY 2002	GOAL: 2400	ACTUAL: 3,363
FY 2003	GOAL: 2400	ACTUAL: 1,214

CUMMULATIVE GOAL: 6,200
GMPO TOTAL : 6,662

GMP Habitat Restoration Partnership Programs

- National Fish and Wildlife Foundation
- NOAA Community Restoration Grant Program
- Texas Corporate Wetlands Restoration Partnership

National Fish and Wildlife Foundation/GMPO

A cooperative agreement since 1999

This agreement has supported:

Shell Marine Habitat Restoration Program

5-Star Habitat Restoration Program
Partners include NOAA, EPA HQ and Region 4 and 6/

******Habitat Team members review and rank proposals***

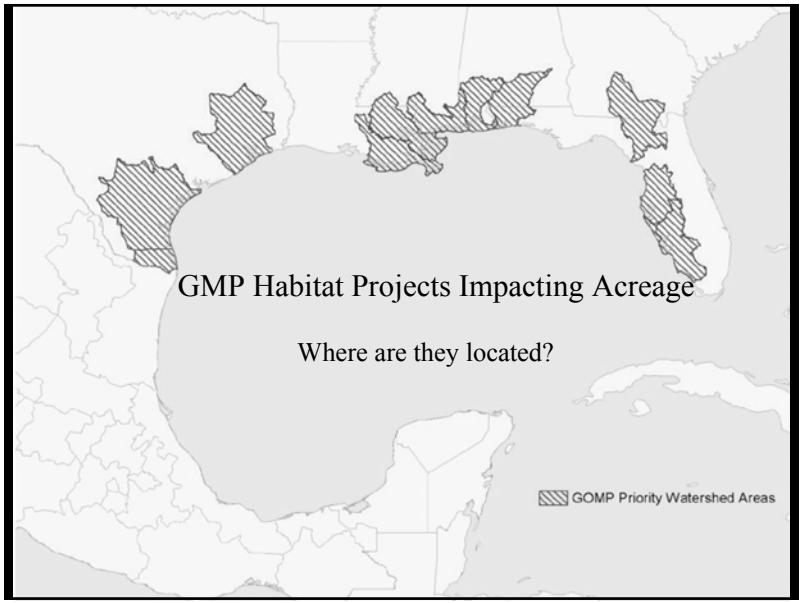
NOAA Community-Based Restoration Partnership (CRP)

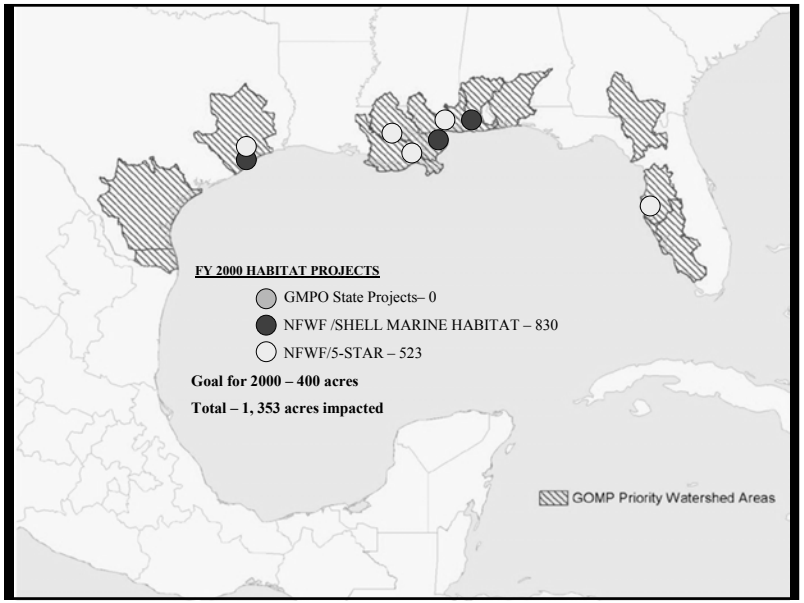
- **2002 – Start of Gulf of Mexico Program/NOAA CRP partnership.**
- **Gulf of Mexico Foundation provides administrative support through cooperative agreement with GMPO.**
- **NOAA CRP targets essential fish habitat projects located in Gulf Ecological Management Sites (GEMS), but all Gulf coastal area projects that restore essential fish habitat are eligible for funding.**
- **Grantees must provide 1:1 match.**
- **Grant Program has grown to $370,000 for FY 2004**

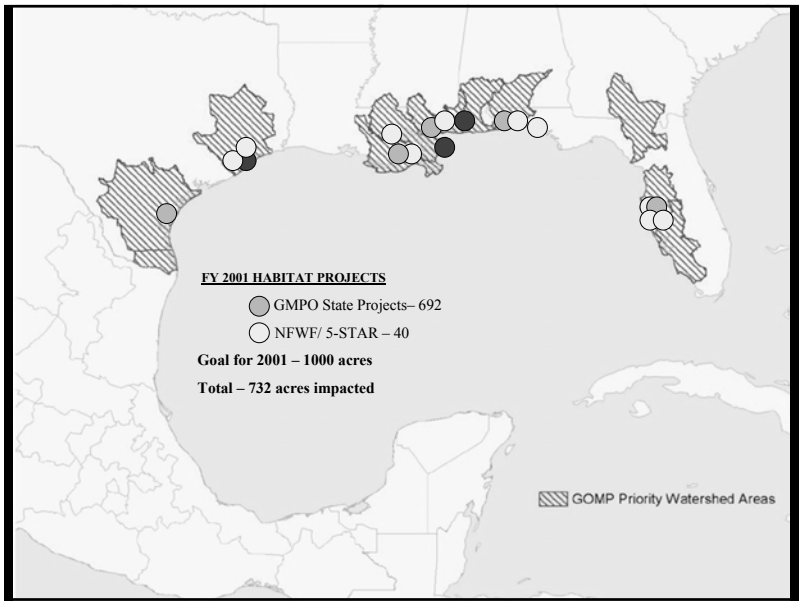
NOAA Community-Based Restoration Partnership (CRP)

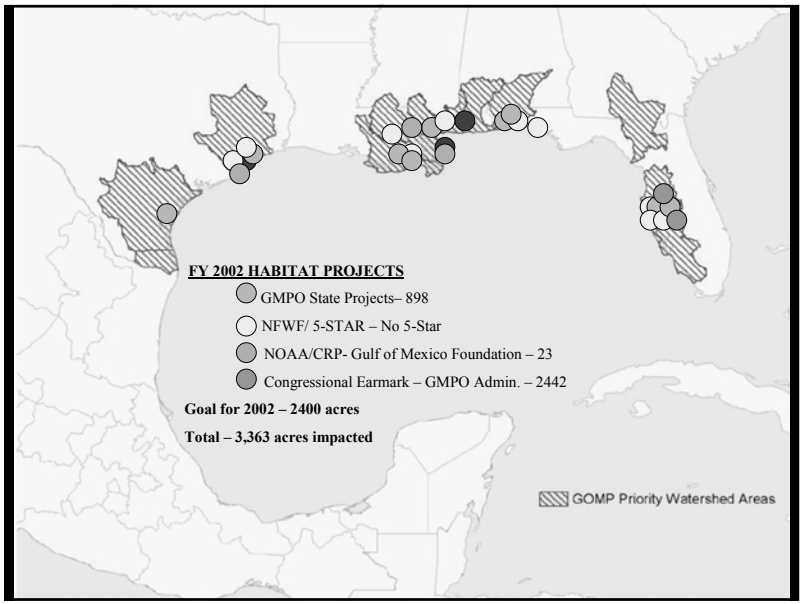
Recent Events:

- **Through the initiative of the US Fish and Wildlife Service, Gulf Ecological Management Sites (GEMS) Managers added 31 National Wildlife Refuges as GEMS, bring the total of GEMS sites to 124.**

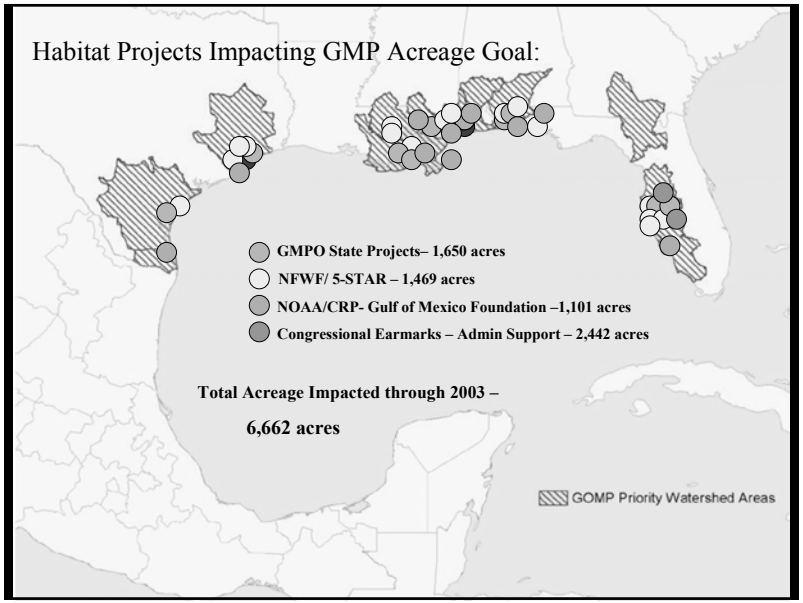

GMP Habitat Projects Impacting Acreage
Where are they located?
GOMP Priority Watershed Areas

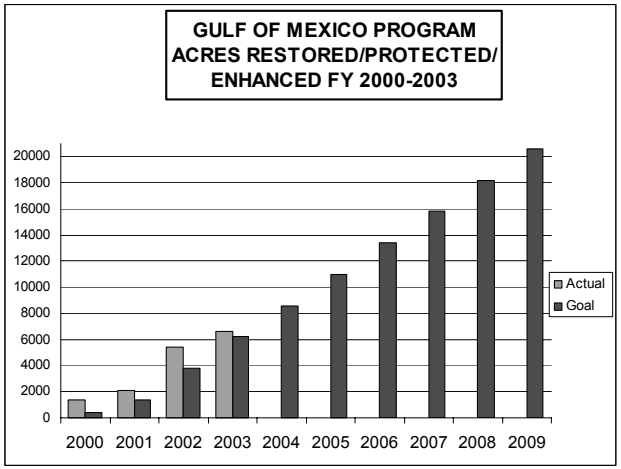

FY 2000 HABITAT PROJECTS
GMPO State Projects– 0
NFWF /SHELL MARINE HABITAT – 830
NFWF/5-STAR – 523
Goal for 2000 – 400 acres
Total – 1, 353 acres impacted
GOMP Priority Watershed Areas


FY 2001 HABITAT PROJECTS
GMPO State Projects– 692
NFWF/ 5-STAR – 40
Goal for 2001 – 1000 acres
Total – 732 acres impacted
GOMP Priority Watershed Areas

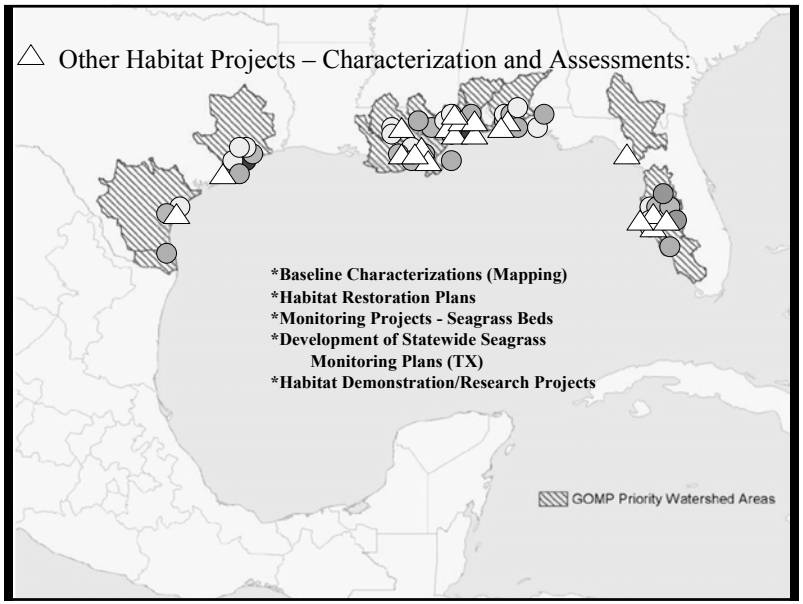

FY 2002 HABITAT PROJECTS
GMPO State Projects– 898
NFWF/ 5-STAR – No 5-Star
NOAA/CRP- Gulf of Mexico Foundation – 23
Congressional Earmark – GMPO Admin. – 2442
Goal for 2002 – 2400 acres
Total – 3,363 acres impacted
GOMP Priority Watershed Areas

Habitat Projects Impacting GMP Acreage Goal:





△ Other Habitat Projects – Characterization and Assessments:



The Nature Conservancy – A growing partnership

1999 – Cooperative Agreement with TNC – Developed an Gulf Ecoregional Plan

* Identified critical coastal habitat sites along the Gulf
* Gathered critical data on seagrasses, wetlands, and locations of oyster reefs, and endangered species.

2003 - GMP is funding the Nature Conservancy to implement its Gulf of Mexico Initiative and support Gulfwings.

The Nature Conservancy
Saving the Last Great Places

GULF OF MEXICO PROGRAM

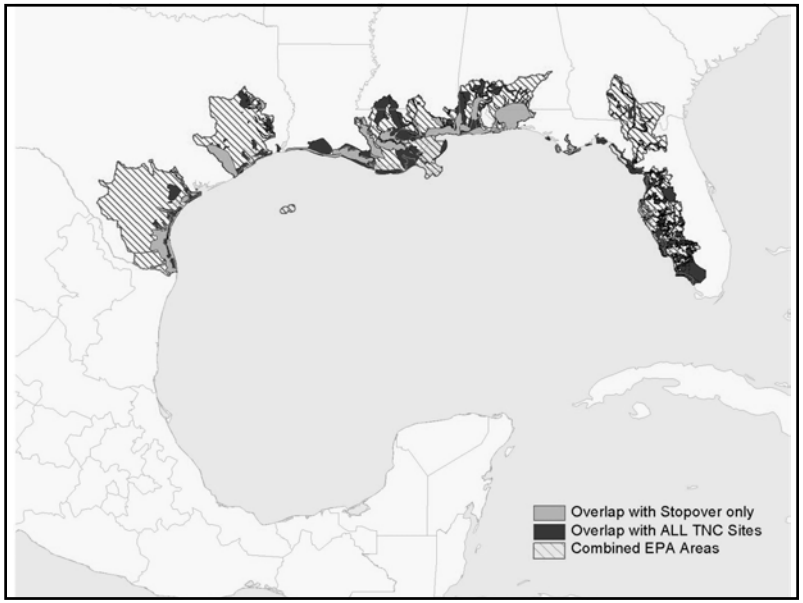
How will this partnership enhance our Habitat acreage goal?

Tasks (continued)

1. **A Gulf-wide conservation vision by identifying cross-cutting areas to target habitat restoration projects.**

2. **Build partner capacity in Mexico, and**

3. **Demonstrate why Gulf conservation is of national & international importance.**



HABITAT SUBOBJECTIVE:

Establish current baseline for coastal marine habitat:

By 2004, the GMP will complete development of an updated Gulf-wide characterization of the status and trends of seagrassess and coastal wetlands.

GULF OF MEXICO PROGRAM

Northern Gulf of Mexico Seagrass Status and Trends Report

Developed by the

Gulf of Mexico Program
And
U.S. Geological Survey
National Wetlands Research Center

Steering Committee:

Lawrence Handley, USGS
Diane Altsman, EPA/GMPO
Richard DeMay, BTNEP

Sub-objective: **By 2009, develop and implement regional and state-specific aquatic nuisance species management plans for coastal waters designed to prevent new introductions and reduce the impact of established invasive species.**

STATUS: LA.07 –The Louisiana Department of Wildlife and Fisheries was given a grant in 2002 to write a comprehensive Louisiana Aquatic Invasive Species Plan. A draft plan has been completed.

- **Subobjective 3(B): Assist in the implementation of Louisiana's Coast 2050 Plan to divert Mississippi River water and restore coastal wetlands in a manner that achieves a 15% reduction in the annual nitrate load from the River to the Gulf.**
  - **Status: GMPO offered communication/modeling assistance to the LCA outreach and technical committees.**
  - **GMPO supported several Louisiana coastal wetlands improvement proje**

Objective 3 – Habitat

FY 2000-FY 2003:

GMP has funded 72 projects to assist in protecting, restoring, enhancing habitats –$4,043,418

GMP's FOCUS

- [redacted]
  - **Gulf Estuaries**
  - **Gulf Hypoxia**

Objective 4 – Nutrient Enrichment

FY 2000-FY 2003:

GMP has funded 11 projects to assist in protecting public health –

$986,400

GMP's FOCUS

- [redacted]

Gulf of Mexico Program
Citizens Advisory Committee

The purpose of the Citizens Advisory Committee (CAC) is to provide guidance, advice, and support for the Gulf of Mexico Program

CAC Composition:

- ***Appointed by the Governor, the CAC is comprised of five citizens from each of the five Gulf states***
- ***Represent five interests for each state***
  - ***Agriculture***
  - ***Environment***
  - ***Business and Industry***
  - ***Tourism***
  - ***Fisheries***

CAC GMPO Annual Performance Goal Accomplishments for Years 2000-2003

Goal:

Objective 5(B): ***Support the Citizen's Advisory Committee efforts to achieve improved regional awareness of the value of Gulf resources, key environmental issues, and actions underway or needed to solve the problems.***

CAC GMPO Annual Performance Goal Accomplishments for Years 2000-2003

5(B)(1): ***CAC members will attend and participate in CAC meetings, Focus Team meetings, MC/PRB meetings, annual Comprehensive meeting, and Project Team meetings; give presentations to local groups in support of GMP efforts; participate in outreach or communications with constituents in the GMP Priority Areas.***

- **Year 2000 - Three CAC meetings; Year 2001 – Three CAC meetings; Year 2002 – Two CAC meetings; Year 2003 - Two CAC meetings (one to be held next month)**
- **Participation in Focus Team, Management Committee and Policy Review Board meetings.**
- **Participation in Comprehensive meetings, Mercury in Fish Consumption Advisory Task Force, MMRC and other GMP related meetings**
- **GMP Office developed a PowerPoint presentation for CAC outreach activities**

CAC GMPO Annual Performance Goal Accomplishments for Years 2000-2003

5(B)(1):

- ***Year 2000:***
  - **Meeting w/GMP Director and the President of the Board of Supervisors;**
  - **Women for a Better Louisiana**
  - **Greater Houston Chamber, East Harris County Manufacturers Association**

CAC GMPO Annual Performance Goal Accomplishments for Years 2000-2003

5(B)(1):

- ***Year 2001:***
  - **Greater Houston Chamber of Commerce and East Harrison County Manufacturers**
  - **Galveston Bay Committee meeting**
  - **TEEP meeting**
  - **Women for a Better Louisiana meeting**
  - **Coalition to Restore Coastal Louisiana meeting**
  - **BTNEP Management and Steering Committee meetings**
  - **Farm Bureau meeting**
  - **Presentation to Ladies Group**

CAC GMPO Annual Performance Goal Accomplishments for Years 2000-2003

5(B)(1):

- ***Year 2002:***
  - **Kiwanis Club, American Institute of Chemical Engineers, Legacy Partners in Education, and Mobile Bay Watch meetings**
  - **Nation Marine Education Conference, GMP Video News Release taping, Teacher Workshop on Invasive Species, National Marine Science Education Conference**
  - **Presentation/Update at American Farm Bureau Conference**
  - **Clean Gulf Conference, Chevron Naturalist's Teachers Recognition**
  - **Clean Texas, Galveston Bay Foundation Executive Council, Galveston Bay Foundation Annual,Clean Texas Team, Galveston Bay National Estuary Program Council, and Galveston Bay National Estuary Program Sediment Quality Subcommittee meetings**

CAC GMPO Annual Performance Goal Accomplishments for Years 2000-2003

5(B)(1):

- ***Year 2002*** ***(continued)***
  - **Trust for Public Land, USACE Interagency Coordination, Harrison County Flood Control District, Houston-Galveston Area Council Natural Resource Advisory Committee, Texas Water Development Board, Galveston Bay Freshwater Inflows Group, and Galveston Bay NEP meetings; Natural Resources Committee Gulf Restoration Network Conference,, Buffalo Bayou Partnership Presentation, Sierra Club Regional Water Conference**
  - **Women for a Better Louisiana, WBL Board, Coalition to Restore Coastal Louisiana, CRCL Board, Lake Ponchartrain Basin, and BTNEP Committee for Migratory Bird Habitat meetings; Tulane Environmental Law Conference**

CAC GMPO Annual Performance Goal Accomplishments for Years 2000-2003

5(B)(1):

- ***Year 2003***
  - **Local Farmers Club Meeting**
  - **Mobile Bay NEP Management Committee, Coastal Resource Advisor Committee, Alabama Clean Water Partnership, and Coastal Resources Advisory Committee meetings**
  - **Coastal Resources Advisory Committee and Natural Resource and Conservation Service meetings**
  - **Mote Marine and Pinellas Environmental Foundation Presentations; Invasive Exhibit, Ocean Conservancy, Florida Sea Grant and Tampa Bay NEP invasive species teaching assistance, and Project Aware Focus Group meetings**
  - **MRBA Dead Zone meeting**
  - **Mitigation Bank Workshop; LA Coastal Area Restoration Study and Coalition to Restore Coastal Louisiana Meetings**

CAC GMPO Annual Performance Goal Accomplishments for Years 2000-2003

5(B)(1):

- ***Year 2003***
  - **Women for a Better Louisiana, Coalition to Restore Coastal Louisiana, Lake Ponchartrain Basin Foundation Board, and Barataria/Terrebonne NEP Habitat committee meetings**
  - **Board of the Southern Shrimp Alliance meeting**
  - **Attended Moss Point's presentation to National Audubon Society about Satellite center, Master Naturalist Program promotion**
  - **Board of Valley Land Fund Assoc., and Mexican environmental group meetings, Liaison with Padre Island Grassland and Beach Restoration Programs**
  - **Houston/Galveston Area Natural Resources Advisory Council, Galveston Bay Council, and various Galveston Bay Estuary Program related meetings; Clean Texas Conference, Texas Watch's Water Quality Forum**
  - **Hosted Texas Farm Bureau meeting with Bryon Griffith**

CAC GMPO Annual Performance Goal
Accomplishments for Years 2000-2003

5(B)(2): ***CAC members will review GMP products, Gulf Guardian applications, and will communicate with Governors' Offices and Congressional members/constituencies.***

- **CAC members represent and provide briefings about the GMP to Governors' offices; provide support for the GMP, and feedback on CAC membership selection**
  - **2000: Conference calls for Congressional letters; letters to Governors; Reviewed GMP Non-Indigenous policies; Gulf Guardian judging**
  - **2001: Meeting with Governor's Policy office; letters to Governors; mailed Congressional letters; Gulf Guardian judging**

CAC GMPO Annual Performance Goal
Accomplishments for Years 2000-2003

5(B)(2): ***CAC members will review GMP products, Gulf Guardian applications, and will communicate with Governors' Offices and Congressional members/constituencies.***

- ***2002*: Briefing with Office of the Governor; GMP Executive Order comments; One Gulf Press Release comments; Comments to Communication Committee; Attend and provide input on GMP state project meetings;**
- ***2003:* Meeting with Office of Governor; Telephone Conversation with Governor's Office; Attend and provide input on GMP state project meetings**

CAC GMPO Annual Performance Goal
Accomplishments for Years 2000-2003

5(B)(3): ***CAC members will participate in State/local public meetings and public comment opportunities related to Gulf activities and in CAC-initiated outreach projects in GMP Priority Areas.***

- **Louisiana Wetlands Loss Resolution for the Gulf of Mexico Program's Policy Review Board**
- **Gulf of Mexico Program Executive Order – Letter of Support from the CAC**
- **"Gulf Coast Bird Trails" on GMP CAC Web page**
- **2001 Resolution to EPA Administrator endorsing the PRB's "Appropriation and Policy Recommendations to Improve Water Quality and Living Resources of the Gulf of Mexico"**

Alabama CAC Meeting Participation

CAC Member	Governor Appointed/ Reappointed	Alternate Member	Interim Member
Brian Grantham, Agriculture	8/19/2003		
Robert Crowe, Business	8/19/2003		
Casi Callaway, Environment	8/19/2003		
Eva Golson, Tourism	8/19/2003		
Debbie Tucker-Corbett,Tourism		7/19/2001	
Chris Nelson, Fisheries	8/19/2003		

Louisiana CAC Participation

CAC Member	Governor Appointed/ Reappointed	Alternate Member	Interim Member
Paul Maclean, Agriculture	1/5/2000		
Benjamin Legendre, Agriculture		11/18/2002	
McChord Charrico, Business			5/14/2003
Jean Westbrook, Environment	1/5/2000		
Carolyn Cheramie, Tourism	1/5/2000		
Donald Lirette, Fisheries	1/5/2000		

Florida CAC Participation

CAC Member	Governor Appointed/ Reappointed	Alternate Member	Interim Member
Scottie Butler, Agriculture			12/7/1999
VACANT, Business			
Heidi Lovett, Environment	10/8/1991		
Becky Clayton, Tourism			12/7/1999
Robert Jones, Fisheries	10/7/1988		
Greg DiDomenico, Fisheries		12/5/2002	

Mississippi CAC Participation

CAC Member	Governor Appointed/ Reappointed	Alternate Member	Interim Member
Don Waller, Agriculture	10/23/1990		
J.R. Wilson, Business	5/4/1993		
Lee Harbison, Business		5/3/2001	
Patty Caranna, Environment			4/9/2001
Jenell Tompkins, Tourism			3/1/2002
Thomas Schultz, Fisheries	11/1/1996		

Texas CAC Participation

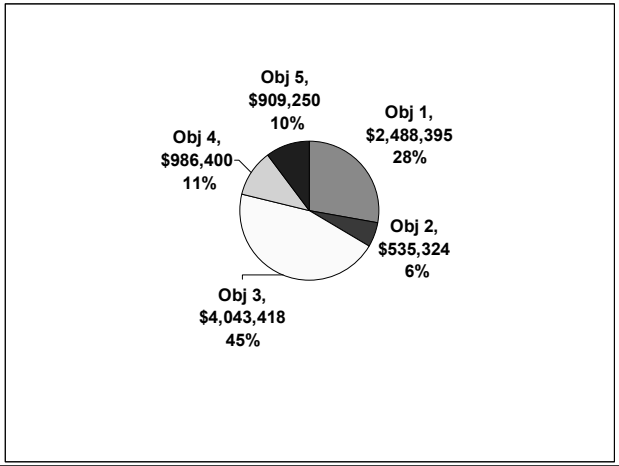
CAC Member	Governor Appointed/ Reappointed	Alternate Member	Interim Member
Ned Meister, Agriculture	10/15/1996		
Erich Schneider, Agriculture		1/24/2002	
James Kachtick, Business	10/15/1996		
Linda Shead, Environment			4/20/2002
David Allex, Tourism			1/24/2002
VACANT, Fisheries			

Objective 5 – Stewardship/ Education Outreach

FY 2000-FY 2003:

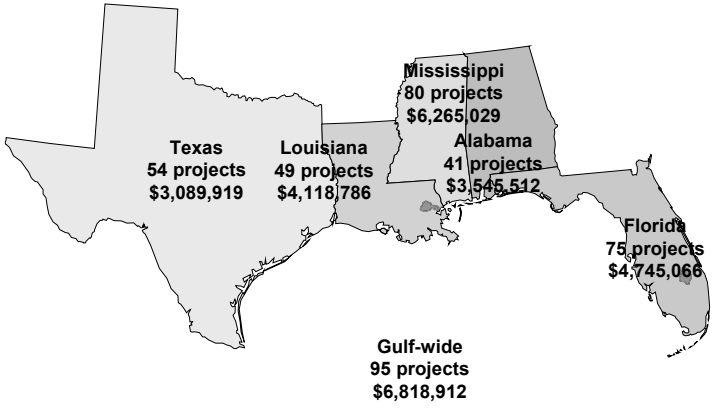
GMP has funded 26 projects to assist in stewardship/education and outreach (including support for the CAC) – $909,250

FY 2000-2003 Gulf of Mexico Program Funding by Objectives



011110GC

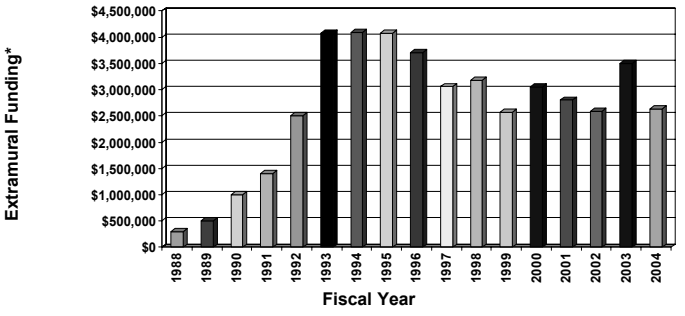
The Gulf of Mexico Program at Work 1988-2003



Totals 394 projects $28,583,224

00170GC

Gulf of Mexico Program Office Historical Funding and Projection 1988 - 2004



Extramural Funding does not include salaries and travel.